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The job mobility patterns of selected Iowa industrial arts teachers

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The job mobility patterns of
selected Iowa industrial arts teachers

by

Peter Olaniyi Awotunde

A Thesis Submitted to the
Graduate Faculty in Partial Fulfillment of the
Requirements for the Degree of
MASTER OF SCIENCE

Major: Industrial Education

Signatures have been redacted for privacy

Iowa State University
Ames, Iowa

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TABLE OF CONTENTS

	Page
ACKNOWLEDGEMENTS	vi
CHAPTER I. INTRODUCTION	1
Preamble	1
Statement of the Problem	3
Purpose of the Study	4
Assumptions of the Study	6
Definition of Terms	6
CHAPTER II. REVIEW OF LITERATURE	9
Introduction	9
Job Mobility and Career Causality	9
Career Patterns	12
Mobility of Educators	14
Factors Affecting Mobility	16
Summary	26
CHAPTER III. METHODOLOGY	28
Introduction	28
Definition of Population and Identification of Sample	28
Hypotheses	30
Development of the Instrument	31
Pilot-Testing the Instrument	33
Collection of Data	34
Analysis of Data	35

	Page
CHAPTER IV. FINDINGS	38
Introduction	38
Findings Related to the Demography of the Subjects	38
Findings Related to the Research Hypotheses	43
Findings Related to the Instrument	51
CHAPTER V. SUMMARY, CONCLUSIONS, AND RECOMMENDATIONS	54
Introduction	54
Conclusions	55
Summary	58
Recommendations	59
REFERENCES	61
APPENDIX A. THE QUESTIONNAIRE	64
APPENDIX B. CORRESPONDENCE	69

LIST OF TABLES

	Page
Table 4.1. Percentage of respondents by groups	38
Table 4.2. Percentage of response by number of years of teaching of respondents	39
Table 4.3. Number of membership in professional organizations by classification of respondents	42
Table 4.4. Responses of subjects about marital status by group	44
Table 4.5. Responses of subjects about preparation for industrial arts teaching by group	44
Table 4.6. Analysis of variance of the age of respondents	45
Table 4.7. Analysis of variance of the number of years of teaching by respondents	46
Table 4.8. Analysis of variance of the responses of subjects regarding the environmental factors	46
Table 4.9. Analysis of variance of the responses of subjects regarding size of classes	47
Table 4.10. Analysis of variance of the responses of subjects regarding the professional factors	47
Table 4.11. Analysis of variance of the responses of subjects regarding students' attitude and achievement	48
Table 4.12. Analysis of variance of the responses of subjects regarding teaching and advising load	49
Table 4.13. Analysis of variance of the responses of subjects regarding preparation required for classroom teaching	49
Table 4.14. Analysis of variance of the responses of subjects regarding the sociological factors	50
Table 4.15. Analysis of variance of the responses of subjects regarding student contact	50

	Page
Table 4.16. Analysis of variance of the responses of subjects regarding individual freedom in school	50
Table 4.17. Varimax rotated factor matrix for the 39 variables in section B of the questionnaire	53

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CHAPTER I. INTRODUCTION

Preamble

Labor market forecasts are essential for government decision makers, manpower and educational planners, vocational counselors, and individuals seeking career information. The business of making projections is, however, a complex task, and the usefulness of such projections is dependent on the consideration given to certain factors. If the forecaster aims at making long-range projections, he may miss some immediate needs. If, on the other hand, he focuses his attention on immediate needs, his projections may be shortsighted.

Another difficulty in making accurate labor market projections stems from a lack of identification and/or understanding of those factors that influence the respective labor markets and a resultant tendency to undergird projections with questionable assumptions.

Still another major factor that affects the accuracy of manpower forecasting is change of policy. Policy changes may render previously valid assumptions and predictions invalid. An economy committed to domestic social and economic programs, for example, will have very different manpower needs from those of an economy heavily committed to defense-oriented programs. Thus, a change in policy will have considerable impact on the assumptions and projections made.

The failure of the forecaster to disaggregate the labor force for which he is forecasting is yet another major factor that could affect the accuracy of projections. Individual labor markets in any country's economy are affected differently by changes that influence

the total economy. At the same time, specific labor markets are affected often by unique variables. Vocational education, for example, is very dependent on the economy of the surrounding community which is itself subject to the state of the economy at large. As indicated by Evans (1971), the need for vocational education derives from the manpower needs of the society as well as from the demands of the enrollees. The need for vocational education is, in turn, derived from the demands for vocational education. To the degree to which vocational education attempts to meet the manpower needs of society, vocational education will be continually changing to reflect the shifting needs of the labor force.

Brown (1967) lent credence to the idea that manpower demand results basically from the same general conditions or events in the market place regardless of type or level of occupation. Brown found from his study of over 7,000 mobile professors that job vacancies in higher education were caused by the following conditions:

- (1) Expansion demand (newly created jobs).
- (2) Replacement demand (death, retirement, return to studies, vertical mobility within occupation, occupational mobility, leaving educational occupation).
- (3) Shift demand (educator moved to other school).
- (4) Temporary demand (on leave).

Brown found that even during the middle sixties, when higher education programs were expanding, over 50 percent of the vacancies were due to replacement needs as opposed to expansion needs. After reviewing research on occupational mobility in the United States

(Lipset and Bendix, 1959; Palmer, 1954), Taylor (1968) wrote ". . . the typical American worker probably changes his job once in every three to five years" (p. 75).

Mobility of workers is neither totally disadvantageous nor totally advantageous to both the individuals involved and the society. Brown (1967) and Taylor (1968) indicated that mobility is functional or dysfunctional, as it:

- (1) Enables the labor force to be geographically and technologically situated in those places where it is most needed.
- (2) Constitutes a mechanism for the individual to achieve success and career fulfillment.
- (3) Contributes to the frustration and psychological and sociological adjustment problems of the individual and his family.
- (4) Costs the hiring agency money and effort to reorient and, where necessary, retain the worker.
- (5) Contributes to discontinuity and instability in academic and administration programs and, hence, in the students' educational sequence.

Statement of the Problem

The nature of the labor force in industrial education is such that the educators have salable skills outside the educational institution and often have previously established reference groups outside of education. For example, though the welding instructor may not consider welding as a profession, he or she has close ties to it, and considers it periodically as an alternate source of employment. In fact, the relative ease with which many industrial education instructors

can move into and out of educational positions may cause considerable problems for those individuals or agencies who need to predict any aspect of industrial education manpower supply and demand. An understanding of the mobility of industrial educators is, therefore, an essential prerequisite to making manpower forecasts in this field.

The main problem of this study was to determine the mobility patterns of selected Iowa secondary schools' industrial arts teachers. Of particular interest to the study was the mobility of the industrial education graduates of Iowa State University which was the result of individuals changing schools or leaving the field of teaching for employment in other fields or leaving industrial arts teaching for the teaching of subjects other than industrial arts.

Purpose of the Study

The primary purpose of the study was to generate information relative to the job mobility of the graduates of industrial education (teaching option) from Iowa State University. Such information could be helpful to the vocational program administrator in hiring personnel and in meeting in-service education needs. The information consisted of the identification of certain demographic, professional, and other factors that discriminate between those teachers who have a propensity to:

- (1) Stay in industrial arts teaching.
- (2) Leave industrial arts teaching.

The study was directed more specifically to identify the pattern of mobility of the graduates in terms of:

- (a) Staying in the same position for a period of time.
- (b) Changing industrial arts teaching position within a period of time.
- (c) Changing from industrial arts teaching to the teaching of non-industrial arts subjects.
- (d) Changing from teaching to non-teaching fields.

The information also consisted of the identification of factors related to curriculum improvement which could be useful to the program administrator in reviewing the program so as to be further responsive to the individual teacher's job needs.

The problem of mobility cannot be divorced from that of job satisfaction. Balyeat (1968) and Herzberg (1959) indicated that one approach for an agency attempting to understand the mobility of a specific occupational group is to initiate a study of job satisfaction which usually leads to certain general descriptive statements regarding which factors are primarily satisfiers and which are dissatisfiers, and in some cases, to a consideration of the relationship between these factors and remaining in or leaving the job.

Another purpose of the study was to generate job satisfying and dissatisfying factors which could be useful to administrators in coping with the personal needs of teachers. Furthermore, the study sought to answer the following questions:

- (1) Is the classification of the teachers dependent on such factors as marital status and feelings about college preparation for industrial arts teaching?

- (2) Are there any significant differences among the various identified groups of subjects in terms of environmental, professional, and sociological factors?

Assumptions of the Study

The following assumptions were made concerning the study:

- (1) The sample included in the study would be representative of the teachers or workers.
- (2) The questionnaire used to collect data is valid and reliable.
- (3) Any uncontrolled variables in the study are uniformly distributed over the entire sample.
- (4) The groups into which the sample would be divided are independent of one another.

Definition of Terms

The following definitions were adopted for the purpose of the study:

1. Industrial Arts

Industrial arts are those educational programs organized for the development of understanding about all aspects of industry and technology, including learning experiences involving activities such as experimenting, designing, constructing, evaluating, and using tools, machines, materials, and processes, and which may assist individuals in the making of informed occupational choices, or may prepare them for entry into advanced trade and industrial or technical education programs.

2. Industrial Education

Industrial education is a generic term applying to all types of education related to industry, including industrial arts education, vocational industrial education (trade and industrial education), and much technical education.

3. Vocational Education

Vocational education is a type of education designed to prepare individuals for gainful employment as semi-skilled or skilled workers or technicians in recognized occupations.

4. Job Mobility

Job mobility is a change in a person's job status; that is, change in the nature of his duties and/or in the organization in which they are performed.

5. Occupational Demand

Occupational demand refers to information directly descriptive of specific jobs which are, or might be, available and to information which can affect the number and type of available jobs, e.g., business expansions or business starts.

6. Occupational Supply

Occupational supply refers to information directly descriptive of workers who are available or might be available for work and to information such as plant closings which affect the supply of workers.

7. Labor Force

Labor force refers to a body of employed workers (as of a corporation or in an industry) at a particular place or period of time.

8. Demographic Information

Demographic information is used to describe general attributes of the population for the purpose of this study.

9. Occupational Education

Occupational education refers to any education with a direct career relationship. It is a broad generic term describing vocational education at the postsecondary level but not limited to any particular delivery system.

10. Career

Career is a succession of paid-work experiences extending through life with no distinction as to increasing satisfaction or increasing status.

11. Environmental Factors

Environmental factors are external factors and influences affecting human behavior over which an individual has no control.

12. Sociological Factors

Sociological factors are factors which affect the ability of an individual to adapt to the social needs of the community or to get along with and to behave like others in his social group.

13. Professional Factors

Professional factors are items associated with the role of teaching and which may affect the ability of the teacher to fulfill the expectations of his job.

CHAPTER II. REVIEW OF LITERATURE

Introduction

The review of literature in this chapter has concentrated mainly on the mobility of educators in general rather than limiting itself to the mobility of industrial educators. The assumption here was that the labor markets of industrial educators were subject to essentially the same laws and pressures as other labor markets so that much could be gained by studying other labor markets and the movement of people within and among these markets. The review has been divided into four sections:

- (1) Conceptual framework for describing job mobility and career causality.
- (2) Career patterns and components.
- (3) Mobility of educators.
- (4) Factors affecting job mobility.

Job Mobility and Career Causality

In his study of "mobile professors," Brown (1967, p. 48) summarized the classical wage theory. The theory, according to him, suggests that for an ideal market to function, five conditions must exist:

- (1) Entry into and exit from the market is unrestricted.
- (2) Complete knowledge exists among all participants in the market.
- (3) Movement of resources is instantaneous and costless.
- (4) All decisions are economically rational, made in accordance with the principles of profit maximization.

- (5) Decisions are made by a large number of demanders and suppliers acting independently of each other.

An ideal market is one in which resources are allocated with perfect economic efficiency. Brown pointed out the economic theory which posits that the best allocation of scarce resources depends upon suppliers moving toward the demanders that offer the best jobs. In his attempt to explain mobility, Brown used this illustration:

When two parties, one a supplier and the other a demander come together and agree upon mutually satisfactory terms of employment, turnover results. Mobility occurs.

It should be noted that the degree to which the five conditions for an ideal market exist determines the economic efficiency of the particular labor market as well as, to a large extent, the freedom of the individual to make career decisions within the labor market setting.

Among the several conceptual frameworks for describing job mobility and career causality is that of Miller and Form (1964). This framework rejected both the individual and social causation theory of career patterns in favor of an equilibrium theory that suggests that career patterns are determined by four forces which act on the individual worker -- social background, native ability, historical circumstances, and acquired personality traits.

Katzell, Korman, and Levine (1971), rather than concentrating on the causation theories of careers, looked more specifically at job changes and offered a conceptual model for understanding worker mobility. The model delineated several different types of job mobility:

- (1) Initial entry into an occupation or job.
- (2) Turnover (leaving the agency because of termination or discharge, layoff, quitting for another job within or outside the field, retirement, illness or death, etc.).
- (3) Internal mobility (within-agency, promotion, transfer, or demotion -- otherwise referred to as upward, lateral, and downward mobility) (p. 4).

Katzell et al. also viewed worker job mobility as a function of two major processes -- occasion and choice. Occasion was explained as including those factors which are outside the worker's control and which determine whether mobility is possible. It could occur in the form of opportunities or necessities for mobility. Two major aspects of "occasion" affecting job mobility, according to the framework are: (1) labor market for an occupation and (2) personnel policies and practices of individual agencies and institutions in the field. In an expanding labor market, more opportunity for mobility is afforded. Conversely, in a contracting labor market, opportunity is less, while there may be more instances of mobility due to necessity. Also, an agency's recruitment practices may or may not bring job openings to the worker's attention (p. 7).

Choice, on the other hand, is the individual's decision to change or not to change his job. The framework pointed out that, in general, an individual's choices are a function of his expectancies concerning the likelihood that changing jobs, or remaining where he is, will result in greater goal attainment or will reduce aversions (unpleasant stimuli) (p. 4).

The authors (Katzell et al., 1971) suggested in the conceptual framework further that in order to predict a choice, one must know what the individual's goals and expectations are, and that the individual's demography and characteristics of the work environment could also be useful in predicting worker job mobility (pp. 4-5).

Another model, offered by Jackson and Crockett (1964) and Taylor (1968), considered career causality. Based on a study of 1,023 adult males living in private households, the authors concluded that occupational transmission in the United States in 1957 was closer to open equality (father's occupation has no effect on son's occupational choice) than to maximum inheritance (sons follow occupational level of father). However, the conclusion of a similar study, Blau and Duncan (1967), contradicted those of Jackson and Crockett (1964) and Taylor (1968) in part. Blau and Duncan used a population of nearly 40,000 adult males to study intergenerational mobility. They concluded that occupational inheritance was greater in all cases than suspected on the assumption of open equality, that upward mobility was more common than downward mobility, and that short-distance moves were more prevalent than long-distance moves.

Career Patterns

Evans and McCloskey (1973) conceived of career as built through a series of experiences which affect sequences of decisions, most of which are recoverable, occurring throughout life. These decisions, according to the authors, could be planned, they could occur by chance, or some combination of planning and chance could be involved.

The authors also indicated that the majority of the research on career development suggests that most careers in the United States follow one of the latter two patterns.

Different authors have defined "career" concept in different ways. Evans and McCloskey (1973) defined an ideal career as "a succession of work experiences, each of which is personally more satisfying than the one that precedes it." Taylor (1968), on the other hand, defined career as "a succession of related jobs, hierarchical in prestige, with ordered directions for an individual to pass through them in a predictable sequence." By this definition, Taylor expressed the opinion that most occupational men and women in the nation's labor force experience only some elements of career patterning, but less than total careers (p. 266).

In 1951, Miller and Form carried out a study on the work histories of 276 men in Ohio. The study led them to formulate five work periods which were later (Miller and Form, 1964) suggested as the work adjustment periods spanning a full life. The periods were: (1) preparatory period, representing early experiences and adjustments in the home, school, and community; (2) initial work period, identified with part-time and/or summer employment which the worker feels is "temporary" and "secondary" to his school life; (3) trial work period in which the individual takes full-time employment and truly begins his struggle to find himself in the world of work; (4) stable work period which is characterized by the worker finding a relatively permanent job, demonstrating relatively satisfactory work adjustment and developing a feeling of identification with his work colleagues; and (5) retirement

which is characterized by the absence of a full-time job following the stable period. The study (Miller and Form, 1951) also gave rise to the description of six types of career patterns which were formed among those men, four of which were considered most common:

- (1) The stable career pattern in which individuals essentially skipped the trial work periods by entering an occupation, often after extensive training, and did not leave that occupation. This pattern was found primarily among men in most professional and some other high status occupations.
- (2) The conventional career pattern in which the workers basically followed these five work periods identified earlier.
- (3) The unstable career pattern in which the workers followed a sequence of "trial-stable-trial," moving from a stable period into another trial period. This pattern was commonly seen among men in the middle-status occupations.
- (4) The multiple-trial career pattern in which the worker tried many occupations before "settling down." This pattern was often observed in the lower-status occupations.

Mobility of Educators

While the focus of considerable research for many years has been on the concept of mobility in the labor market (Curtis, 1960; Davidson and Anderson, 1937; Jackson and Crockett, 1964; Lipset and Bendix, 1959; Perrucci, 1961), relatively little research seems to have been conducted on the mobility of educators. Brown's (1967) study of college and university professors utilized seven cause and/or effect

factors to study the relative scarcity of personnel in 23 disciplines. Nearly 74 percent of the 10,312 mobile professors in the sample responded to the mailed questionnaire regarding conditions during the 1962-63 school year. Of particular interest were the following findings:

1. When asked, "What is your predecessor doing this year?" the respondents' answers provided this picture. Twenty-three percent of the positions were vacated by professors changing colleges; 43 percent of the positions were newly created, so there was no predecessor; 2.8 percent of the vacancies resulted from professors moving into business or government positions (p. 28).
2. The respondents, when asked what their activity had been the previous year, gave the following report: 32 percent had been teachers in higher education; 39.6 percent had been students; 9.7 percent had been primary or secondary teachers; 10.2 percent had been in business, government, or foundation work (p. 33).

Brown stated:

The supply of professors available to American higher education is not, even in a given year, fixed and rigid. In a limited sense, demand brings forth supply. One-third of all newly hired faculty (over 10,000 individuals) would not be teaching in higher education if an active recruiter had not interested them with a specific offer (p. 47).

3. About 53 percent of the respondents indicated that they expected to stay less than four years in their present job. Only 17 percent considered their new job as permanent (p. 35).

4. The responses to the question on geographic mobility showed that the median length of move by the professors in the study was approximately 500 miles; more than one-fourth moved over 1,000 miles. Brown concluded on the basis of these responses that the college teacher labor market is nationwide.

Commenting on Brown's study, Wiens (1974) stated that in one respect, the labor markets of college teachers and occupational educators were alike -- in both cases, entry into the labor market did not require a teaching certificate based on a baccalaureate program. Consequently, the statement by Brown concerning the flexibility of the American higher education labor market could, perhaps, according to Wiens, be paraphrased for occupational educators, suggesting that the labor market for occupational educators is flexible and, to a greater or lesser degree, dependent on the recruiting done.

Factors Affecting Mobility

Education

The relationship between education and occupational status has been well established (Blau and Duncan, 1967, pp. 402-403), but the relationship between education and occupational mobility is not as clear, since education is usually considered incidentally as it qualifies individuals for certain occupations. Education is inter-related with a number of other factors; e.g., a high level of schooling is required for professionals, and professionals tend to be more geographically mobile than are people in the major categories, except

for farm laborers (Miller and Form, 1964, p. 66). In the Oakland study (Lipset and Bendix, 1959, p. 153), the average number of jobs per respondent's work history was determined by occupational group. A possible explanation is that (1) persons who can best afford education tend to get the best vocational guidance both in school and at home, and (2) persons who have invested considerable time and money in getting their education have a stronger feeling of commitment to the occupation (Sharp, 1970, pp. 69-73). The second point is likely to be a factor in reducing occupational mobility, but would not prevent job mobility, a process used by many to move vertically.

Age

Hiestand (1971) saw graduate study for "middle-aged" persons (after 35 years of age) as an indication of occupational change. In 1966, he found that 16.5 percent, 20.4 percent, and 8.7 percent of the graduate students in New York University, Columbia University, and the University of Chicago, respectively, were over 35 years of age. Hiestand was of the opinion that the changes in technology and in the professions had exerted pressure on many persons to return to graduate school after 35. He also noted that the tendency toward earlier marriage and smaller families resulted in the freedom for many individuals to return to graduate school at that age. When 70 graduates over 35 years were surveyed to determine the type of occupational mobility they sought through their return to graduate school, Hiestand (p. 49) found the responses suggesting that occupational mobility was sought by this group. Another interesting finding

of Hiestand's (p. 54) was that the decision to return to graduate school was made in a very short period by many of the subjects. This suggests that the stated expectations of individuals regarding their occupation may not be a reliable source of information for some people.

Marital status

Miller and Form (1964) summarized the influence of marriage and children at home thusly ". . . the effect is to cause the worker to remain on the job and to diminish the possibility of moving either from his job or from his community" (p. 599). They also found that home ownership has a similar effect. In general, the more vested interests a man has in a community and in his home, the more reluctant he will be to quit his job and move.

Community size

In general, the more rapidly a community is expanding, the more active are the labor markets in it and the greater is the consequent mobility (Brown, 1967, p. 32). An aspect of community size which has been the subject of considerable research has been the intergenerational social mobility which has been defined as the effect of being raised in a given size or type of community. Lipset and Bendix (1959) in discussing research related to upward (social) mobility, stated:

The larger the community in which the son of a worker grew up, the better his chances for upward mobility, a relationship that does not hold for the sons of nonmanual fathers. The positive effect of being reared in a large city on occupational opportunities is found among those who have a high school education or better, size of community of orientation is not positively related to greater opportunity (p. 213).

Socioeconomic status

Caplow (1954, p. 30) stated that the differences in social status on prestige were apparent in all societies to a greater or lesser degree. Status-fixing attributes such as ancestry, religious office, and political affiliation have been replaced in America by occupational identification. Blau and Duncan (1967) supported this assumption in the following statements:

Important as these prestige strata studied by Warner may be in the social life of a community, however, economic rather than prestige criteria are undoubtedly the crucial ones in the stratification system of the entire society . . . occupational position does not encompass all aspects of the concept of class, but it is probably the best single indicator of it (p. 6).

The relationship between wages, education, and occupation was described more succinctly by Reiss, Duncan, and Hatt (1961):

Both individual income and educational attainment, which are used as measures of socio-economic status, are known to be correlated with occupational ranks; and both can be seen as aspects of occupational status since education is a basis for entry into many occupations, and for most people income is derived from occupation (p. 30).

Studies have shown that the socioeconomic status of the father is positively related to (1) the educational aspirations and attainment of his children; (2) the occupational aspiration of his children; (3) the first job of his children; and (4) inversely related to the number of children in the family (Blau and Duncan, 1967, chapter 9; Lipset and Bendix, 1959, chapters III and IV).

The effect of socioeconomic status on the mobility of educators is difficult to predict. Sharp (1970) conducted a follow-up study in

1963 of 25,000 students who had received baccalaureate degrees in 1958 and 5,000 graduate students who had received master degrees in 1958. A conclusion of the study was that "teachers aspire to climb within the system -- from elementary school to high school, from high school to junior college, and on to a four-year college or university" (p. 47). Several questions were raised by this conclusion regarding the occupational educators:

- (1) Is the socioeconomic background of some occupational educators' specialty groups quite different from that of others?
- (2) If differences are found in the socioeconomic backgrounds of occupational educators, how will these differences affect their jobs and occupational mobility? As already stated, the level of the first job is positively related to father's occupation. Does this mean that, on the whole, the occupational educators who have come from a lower socioeconomic background will have had to make more occupational and job changes before entering occupational education than would those who came from a higher level of socioeconomic status?
- (3) Once in occupational education, will there be a difference in job mobility; e.g., will those whose fathers had a higher status job tend to strive more for upward mobility than those who came from lower status backgrounds?
- (4) How will quit-rates among occupational educators be related to differences in socio-economic background?

Past mobility

Lipset's and Bendix's study (1959) of 955 Oakland workers showed some interesting conclusions regarding the interaction of different types of mobility:

- (1) There was a high degree of association among geographic mobility, job mobility, and occupational mobility; i.e., someone who changed jobs more frequently was also likely to be more geographically mobile and more likely to change occupations more often (p. 160).
- (2) The Oakland men were likely to change from one job to another than to shift occupations, but they were more likely to change occupations than to move to another community (pp. 159-160).

Sharp (1970, p. 49) found in her longitudinal study that five years after the degree, those who had entered teaching were strongly committed to their occupation. Nearly 80 percent of the baccalaureate group and 90 percent of the group who had received master degrees in 1958 wanted to remain within the field of education, although not necessarily at their current level.

Community attachment

Community attachment and involvement take many forms -- from buying a house and joining voluntary associations to local political involvements and developing friendships. The generalization is usually made that the more involved and attached a worker is to the community, the more reluctant he will be to move his residence. This, however,

does not preclude the worker's changing jobs and/or occupations unless to do so would require geographic mobility or would put social pressure on him to change his life style in ways he does not like. This suggests that job or occupational mobility without geographic mobility would be more likely to be possible in a metropolis than in a small community.

In a study of church membership and occupational mobility in the Detroit area, Curtis (1960) found little difference in church membership between occupationally mobile and occupationally stable individuals.

Money

Income, because it is usually considered the primary reason for employment, is often seen as a major influence in job mobility. Theoretically, wages are hierarchial in the occupational structure so that movements upward are accompanied by higher salaries. In reality, numerous cases exist in which an upward shift in occupation is accompanied by a drop in wages and vice versa. The salaries of teachers, linked as they are to local revenue and local control, have usually been lower than the salaries offered by the private enterprise sector to individuals with comparable educational background.

In spite of the strong commitment to education found by Sharp (1970, p. 49) among the large number of 1958 college graduates who were employed in educational institutions in 1963, discontent with salaries surfaced for male teachers in elementary and high school levels; nearly 50 percent were dissatisfied with their salaries, a figure unmatched by graduates employed in other occupational categories (p. 50). Of those who received master degrees in 1958 and were

teaching in 1963, "Nearly 30 percent of the men were dissatisfied with their income, the highest dissatisfaction percentage for any occupation in the M.A. group" (p. 51).

The research cited indicates that salary is a factor in job mobility. Furthermore, the research supports the belief that salary may be a greater source of dissatisfaction in some occupations, e.g., teaching, than in others. Based on a review of a number of mobility studies, Parnes (1968) offered two important generalizations on the subject:

There is some evidence that the wage factor may be more important in explaining voluntary job separations during periods of high employment than during periods when the labor market is looser.

It appears that in the minority of cases where workers have actually lined-up a new job before quitting and are thus in a position to make a direct comparison between the two, wages and other economic factors play a larger role in the decision to quit than in the more typical situation where the worker quits his job and then looks for another (p. 28).

Job satisfaction

Wages, job security, and occupational identity are some of the factors contributing to job satisfaction and dissatisfaction. However, the nature and amount of research available on wages, job security, and occupational identity seemed to warrant the isolation and the separate discussion of these factors. Other factors, especially those related to the job itself, were considered in this section.

Locke (1968, p. 7) criticized job satisfaction research of many researchers because of their failure to define job satisfaction and

dissatisfaction in terms of the psychological framework in which one's job attitudes are formed. He developed the framework in the following way:

- (1) Job satisfaction and dissatisfaction are "complex emotional reactions to the job." All emotions are the products of value judgments: a "value" is that which one acts to gain and/or keep and that which one regards as conducive to one's welfare.
- (2) Man's most basic emotions are pleasure and displeasure. Pleasure is the consequence of (perceived) value achievement. Displeasure is the consequence of (perceived) value negation or value frustration.
- (3) Job satisfaction and dissatisfaction are a function of the perceived relationship between what one wants from one's job and what one perceives it as offering or entailing.
- (4) Every value has two attributes: content and intensity. Content refers to what the person wants to gain and/or keep; intensity refers to how much he wants to gain or keep it.
- (5) Overall job satisfaction is the sum of the evaluations of the discernible elements of which the job is composed.

Since job dissatisfaction may lead not only to job termination, but, for those who stay, may lead to low morale and inefficiency, institutions are interested in the causes of dissatisfaction as well as in the shifts that may be occurring in the attitudes of different groups. Hulin and Smith (1964) directed a study of 295 male and 163 female

workers from four industries to determine sex differences in job satisfaction. They found that in three of the four plants, the female workers were significantly less satisfied than the male workers.

In studying the factors that were associated with tradesmen leaving the shop and entering the teaching profession, Gerald Parks (1965) identified two intrinsic factors as most often cited: the quest for self-realization and the desire to be of service.

Occupational and professional attachment

Occupational mobility is linked closely with the degree of attachment one has with the occupation. Brown (1967), after studying the mobility of college professors, stated:

Job switching, mostly voluntary, is the rule. The idea of working one's way up in a single institution, without seriously considering jobs at other schools, is foreign to faculties. . . . Because loyalty to discipline transcends loyalty to school and because teaching-research skills are readily transferable among schools, mobility is accepted and approved by the profession (p. 25).

With the diverse backgrounds which occupational educators exhibit, one would speculate that occupational attachment may vary considerably from group to group as well as possibly varying between individuals with different career patterns within groups. The individual who has become a skilled tool and die maker, and then has become a teacher of this occupation with no college education, may identify more with the occupation of tool and die maker than with that of occupational educator. Nurses' training is also designed to inculcate a professional identity.

A nurse educator in a vocational school is caught between demands to identify with nurses, nursing educators, occupational educators, and educators in general.

Summary

That the study of other labor markets will be profitable for understanding the mobility of industrial educators and will help to guide but not to substitute for a description of the industrial education labor market cannot be overemphasized. The literature reviewed in this chapter has been of benefit to the understanding of worker job mobility. Of particular importance is the problem of "occasion" which was explained in part as the factors which are outside the worker's control. One aspect of occasion is personnel policies and practices of individual agencies and institutions. "Occasion" can be directly related to the problem of job satisfaction. The point has been made that job dissatisfaction may lead not only to job termination, but for those who stay may lead to low morale and inefficiency, and that one approach for understanding the mobility of any occupational group is to initiate a study of job satisfaction.

The two concepts -- "occasion" and job satisfaction, cannot be divorced from the motivation-hygiene theory of Frederick Herzberg (1959). Two hundred engineers and accountants who represented a cross section of Pittsburgh industry were interviewed. They were asked about events they had experienced at work which either had resulted in a marked improvement in their job satisfaction or had led to a marked reduction in job satisfaction. As a result of the study, Herzberg concluded

that the growth or motivation factors that were intrinsic to any job are: achievement, recognition for achievement, the work itself, responsibility, and growth advancement. The dissatisfaction-avoidance or hygiene factors extrinsic to any job included company policy and administration, supervision, interpersonal relationships, working conditions, salary, status, and security.

With the foregoing review of literature in mind, this study was developed to supplement and complement the methods and conclusions of many authors and researchers.

CHAPTER III. METHODOLOGY

Introduction

This chapter presented the procedures adopted for the study. The procedures have been divided into the following sections:

- (1) Definition of the population and sample.
- (2) Hypotheses.
- (3) Instrument for collecting data:
 - (a) Development of the instrument.
 - (b) Pilot-testing of the instrument.
 - (c) Data collection using the instrument.
- (4) Analysis of data.

Definition of Population and
Identification of Sample

The population for the study was the certificated secondary school industrial arts teachers in the state of Iowa. Uncertificated teachers were not considered as belonging to the teaching profession, and so it was thought that their mobility in and out of teaching could not be compared with the mobility of professional teachers. Within this population, a sample -- the graduates (teaching option) of the Department of Industrial Education, Iowa State University -- was selected as the subjects for the study. This sample was selected because apart from being representative of the population, the names and addresses of the subjects could be more easily obtained than those of any other sample within the population. Only those who graduated from the department

between 1970 and 1979 -- a period of 10 years -- were included in the study.

Having identified the sample, the Alumni Office, Iowa State University, was contacted for a computer printout of the names and addresses of the subjects who had qualified for teaching certification in the state of Iowa. The printout, obtained some days following the request, contained 180 names with their addresses. Because all the subjects had Iowa's teaching certification, they were considered to be Iowa teachers.

Four groups of subjects were originally identified with the expectation that each of the subjects on the computer printout would fall into one of the groups or the other. The identified groups were:

Group 1 - Certificated teachers of industrial arts who remained in the same position within 1970-1979 period.

Group 2 - Certificated teachers of industrial arts who changed position within 1970-1979 period.

Group 3 - Certificated teachers of industrial arts who were not teaching industrial arts but were teaching other subjects within 1970-1979 period.

Group 4 - Certificated teachers of industrial arts who left industrial arts teaching for employment in non-teaching fields.

Identification of the subjects into any of the groups was not done until after the instrument had been completed and returned by the subjects.

Hypotheses

The development of the instrument for collecting data was preceded by a formulation of hypotheses. The hypotheses became guides in the development of the instrument later. Based on the research questions raised earlier:

- (1) Is the classification of the subjects dependent on such factors as marital status and feeling about preparation for industrial arts teaching?
- (2) Are there any significant differences among the various identified groups of subjects in terms of environmental, professional, and sociological factors?

The following research hypotheses stated in the null form with their corresponding statistical hypotheses stated in both null and alternative forms were formulated:

- (1) The classification of the groups of subjects is not dependent on marital status.
 - (i) $H_0: P_{1j} = P_{2j} = \dots = P_{Rj}$ for $j = 1$ to C where there are R rows and C columns.
 - (ii) H_a : At least two proportions within a column differ.
- (2) The classification of the groups of subjects is not dependent on the feeling of subjects about their preparation in college for industrial arts teaching.
 - (i) $H_0: P_{1j} = P_{2j} = \dots = P_{Rj}$ for $j = 1$ to C where there are R rows and C columns.
 - (ii) H_a : At least two proportions within a column differ.

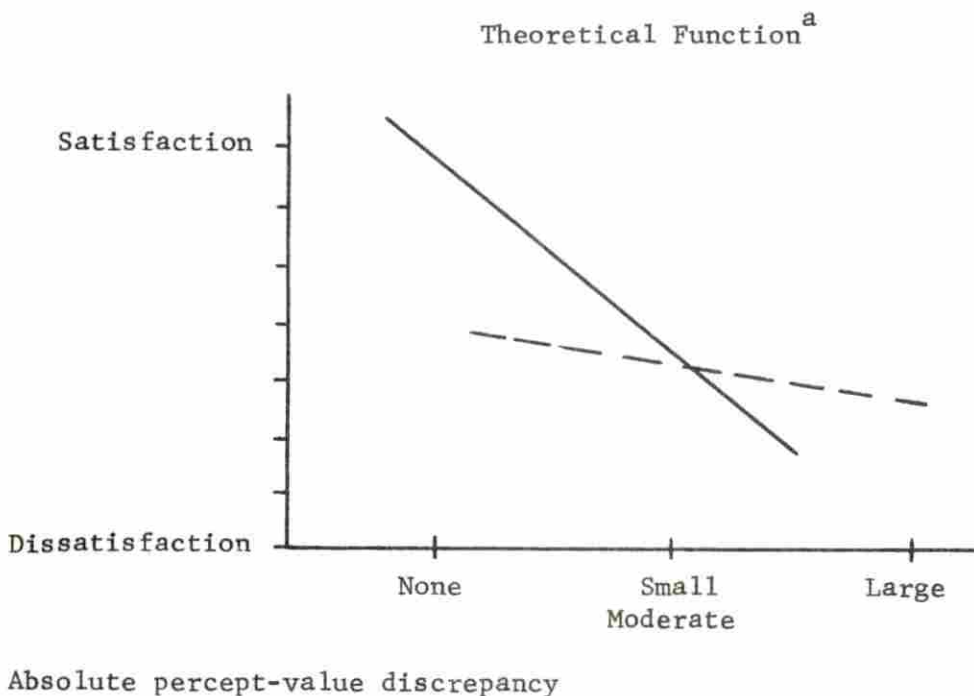
- (3) There are no significant mean differences among the groups of subjects in terms of age.
- (i) $H_0: \mu_{\text{group 1}} = \mu_{\text{group 2}} = \mu_{\text{group 3}} = \dots = \mu_{\text{group K}}$.
- (ii) H_a : At least two group means are different.
- (4) There are no significant mean differences among the groups of subjects in terms of years of teaching.
- (i) $H_0: \mu_{\text{group 1}} = \mu_{\text{group 2}} = \mu_{\text{group 3}} = \dots = \mu_{\text{group K}}$.
- (ii) H_a : At least two group means are different.
- (5) There are no significant mean differences among the groups of subjects in terms of the environmental factors.
- (i) $H_0: \mu_{\text{group 1}} = \mu_{\text{group 2}} = \mu_{\text{group 3}} = \dots = \mu_{\text{group K}}$.
- (ii) H_a : At least two group means are different.
- (6) There are no significant mean differences among the groups of subjects in terms of the professional factors.
- (i) $H_0: \mu_{\text{group 1}} = \mu_{\text{group 2}} = \mu_{\text{group 3}} = \dots = \mu_{\text{group K}}$.
- (ii) H_a : At least two group means are different.
- (7) There are no significant mean differences among the groups of subjects in terms of the sociological factors.
- (i) $H_0: \mu_{\text{group 1}} = \mu_{\text{group 2}} = \mu_{\text{group 3}} = \dots = \mu_{\text{group K}}$.
- (ii) H_a : At least two group means are different.

Development of the Instrument

A questionnaire was used for this study because of the wide geographic distribution of the subjects. The ideas of some authors and researchers (Locke, 1968; Herzberg, 1959; Hulin and Smith, 1964) as well as the suggestions of some professors within the College of

Education, Iowa State University, were utilized in developing the questionnaire.

Of particular importance in this exercise (questionnaire development) was the idea obtained from Locke (1968), which dealt with absolute percept-value discrepancy.



^aAdapted from Locke (1968).

Locke (1968) indicated that the definition of job satisfaction to which one subscribes determines the data collection device chosen. Locke's conceptual definition requires that three bits of information be gathered: what one's values are, how important the various values are, and to what degree the individual perceives that his or her job is contributing to or distracting from each value.

The developed questionnaire was structured in two sections. Section A sought demographic information about the respondents. Questions concerning age, marital status, experience in teaching, present and past assignments, opinion about preparation for teaching, membership in professional organizations, and anticipation about future change in jobs or positions were asked. Section B adopted the cliché, "If you want to know, ask them!" implying the use of some straightforward question of the type, "To what degree are you satisfied with different aspects of your job?" Respondents were asked in this section to rate a total of 39 variables grouped into three -- environmental, professional, and sociological -- variables, on a scale of one to five, ranging from strongly dissatisfied to strongly satisfied.

The 39 variables were identified using a number of occupational attitude instruments. Among these were: "The Job Description Index," developed by Hulin and Smith at Cornell; "Factors for Job Satisfaction and Job Dissatisfaction," designed by Dunnette and others at the University of Minnesota to test the Herzberg's theory of job satisfaction; and the "SRA Employee Attitude Survey." Copies of these occupational attitude instruments were found in Robinson, Athanasiou, and Head (1969).

Pilot-Testing the Instrument

The completed questionnaire was distributed to eight graduate students in the Department of Industrial Education, Iowa State University, to respond to and to make necessary comments that could help in revising the instrument. Five professors within the College of

Education were also requested to read and make comments on the questionnaire. A preponderance of inappropriate responses to some items on the questionnaire were received from the graduate students. The items were examined for ambiguity and poor wording. Inadequate instructions became apparent by the responses to some items, while the other affected ones were found to be poorly worded. The affected items were reconstructed either by rewording them or by changing the instructions.

Some areas of extreme sensitivity as well as inappropriate questions also became apparent through the comments of the professors. The affected items were eliminated from the instrument. The final instrument -- a questionnaire comprising 14 items in section A and 39 items in section B -- appears in Appendix A.

Collection of Data

The questionnaire was mailed to each subject in January, 1980, together with a cover letter and a self-addressed stamped envelope for returning the completed questionnaire. The cover letter, apart from introducing the researcher and the purpose of the study, also requested the subjects to complete and return the questionnaire within two weeks. A copy of the cover letter appears in Appendix B.

At the end of two weeks, only 70 responses out of a total of 180 mailings had been returned -- a 38.9 percent return. An allowance of one additional week was provided before a follow-up to the non-respondents was undertaken. At the end of three weeks, the return of completed instrument had gone up to 84 -- a 46.7 percent return.

At the expiration of the allowance period, a follow-up letter was sent to the subjects who had not returned the questionnaire. The letter, rather than specify a date, requested the subjects to complete and return the questionnaire as early as possible. In case the first mailed copy of the questionnaire was not received, a second copy accompanied the follow-up letter. Following this process, 51 more responses were received out of a second mailing of 96 -- a 53 percent return. The total questionnaire returned from the first and second mailings was 135 out of 180 -- a total of 75 percent return.

Analysis of Data

The data obtained from the returned questionnaires were coded on the test scoring forms of the National Computer Systems to facilitate analysis using the computer. During the coding of data, the subjects were identified into groups in accordance with their responses. It was discovered by the process of coding that 11 returned questionnaires did not contain enough information so they were not included in the data analysis. This left a total of 124 returned questionnaires for analysis. Contrary to the four groups originally identified, five finally emerged. The five groups that emerged during data coding were:

- (1) Certificated teachers of industrial arts in the same position within the 1970-1979 period.
- (2) Certificated teachers of industrial arts who changed positions within the 1970-1979 period.
- (3) Certificated teachers of industrial arts who, rather than teach industrial arts, taught subjects other than industrial arts within the 1970-1979 period.

- (4) Certificated teachers of industrial arts who left industrial arts teaching for employment in other fields.
- (5) Certificated teachers of industrial arts who never taught industrial arts within the 1970-1979 period.

Various computer programs were then written using the Statistical Package for the Social Sciences (SPSS). Before testing each of the hypotheses for statistical significance, frequency count was taken for each of the groups using the FREQUENCY procedure of SPSS program. The purpose of the count was to find out if there were enough respondents in each group for data analysis. Because there was only 0.8 percent of the respondents in group 3, the researcher was advised to eliminate group 3 completely from the data analysis. The remaining four groups were used in the testing of the first three hypotheses, because the independent variable was common to them. However, only groups 1, 2, and 4 were used in testing the remaining four hypotheses, because subjects in group 5 had never taught and so did not respond to the questions related to hypotheses four through seven. Specifically, the following procedures were adopted for testing each of the hypotheses:

- (1) Hypothesis one was tested by means of the chi-square test using marital status as the independent variable and the classification, that is, the groups of subjects as the dependent variable.
- (2) Hypothesis two was tested by means of the chi-square test using opinion expressed by the respondents as the independent variable and the groups of subjects as the dependent variable.

- (3) Hypothesis three was tested using the single-classification analysis of variance with age as the independent variable and group of subjects as the dependent variable.
- (4) Hypothesis four was also tested by means of the single classification analysis of variance using years of teaching as the independent variable and the groups of respondents as the dependent variable.
- (5) Hypotheses five through seven were analyzed by means of the single classification analysis of variance using each of the factors in section B of the questionnaire as the independent variable and the groups of respondents as the dependent variable.

The CROSSTAB procedure of the SPSS was adopted for the chi-square tests, while the ONEWAY procedure was adopted for all hypotheses involving test by means of the single classification analysis of variance.

In order to know the patterning of the 39 variables in section B of the questionnaire, a factor analysis was run using the SPSS FACTOR procedure and the principal iteration options. The factors were rotated using VARIMAX rotation.

CHAPTER IV. FINDINGS

Introduction

The major findings of this study, as presented in this chapter, were structured in three parts:

- (1) Findings related to the demography of the subjects.
- (2) Findings related to the research hypotheses.
- (3) Findings related to the instrument.

Findings Related to the
Demography of the Subjects

The number of respondents in each of the five groups was as shown in Table 4.1. The total number of respondents was 124. The age of the respondents ranged from 23 to 58 years, and the mean of the ages was 30.5 years. It was evident from the analysis of the responses concerning number of years of teaching that the mean of the respondents'

Table 4.1. Percentage of respondents by groups

Group	Absolute frequency (percentage)
1. Remained in the same teaching position within the 10-year period	33.9
2. Changed teaching position within the 10-year period	17.7
3. Teaching subjects other than industrial arts within the 10-year period	0.8
4. Changed job (from teaching to non-teaching) within the 10-year period	28.2
5. Never taught within the 10-year period	<u>19.4</u>
Total	100

teaching experience was 3.97 years with the period of teaching, as presented in Table 4.2, ranging from one to 24 years.

Table 4.2. Percentage of response by number of years of teaching of respondents^a

Number of years of teaching	Relative frequency (percentage)
0	19.4
1	8.1
2	18.5
3	8.1
4	9.7
5	8.9
6	8.1
7	3.2
8	4.8
9	2.4
10	2.4
11	1.6
14	1.6
15	0.8
17	0.8
24	0.8
Total	100

^aMean = 3.967; median = 2.950; standard deviation = 3.977.

Concerning the question, "What was your primary assignment when you started teaching?" it was found that 78.2% of the respondents taught industrial arts, 0.8% taught subjects other than industrial arts, while 16.9% of the respondents did not go into teaching. However, concerning their present primary assignment, 49.2% of the respondents reported teaching industrial arts, 47.6% reported not teaching at all, while the remaining 3.2% did not respond to the item. Those who did not go into teaching after graduation from college and

those who fell out of teaching took up jobs that were not teaching-related. The jobs included: farming, insurance, real estate, construction, and manufacturing, sales, and private business.

Another finding was concerned with the respondents' reasons for deciding to pursue industrial arts teaching as a career in college. Of the total respondents, 9.7% made the decision because of the advice or the influence of their parents, while 24.2% made the decision because of the advice of friends. The decision to pursue industrial arts teaching as a career by 4% of the respondents was influenced by either their high schools' or the Iowa State University's guidance counselors, while 23.4% made the decision based on the influence of their industrial arts teachers in the high school. Additional reasons were given by 57.3% of the respondents for choosing industrial arts teaching as a career. The reasons included: interest in skills' teaching, dropping out of engineering, interest in industry and engineering, previous industrial experience, results of college interest test, and personal choice.

Concerning the feelings of the respondents about the preparation which they had in college for industrial arts teaching, it was found that 61.3% of the respondents felt adequately prepared, while 35.5% felt that the training they had was not adequate. The remaining 3.2% of the respondents expressed no opinion about their preparation. A follow-up to the question of preparation for teaching stated, "In which areas did you feel least prepared?" Analysis showed that 25.8% of the respondents indicated that they had least preparation in teaching

methods (including the management of industrial arts laboratories), 39.9% in human and public relations, while 26.6% indicated that they were least prepared in the knowledge of subject matter. Additional comments on the question revealed the feeling by those respondents who felt inadequately prepared in college that the time allocation to a course during a quarter was not really sufficient to gain the skills needed to teach others. These respondents felt that the ideology of college and the reality of the secondary school industrial arts classroom were too far apart. However, other comments by those respondents who felt adequately prepared indicated that Iowa State's industrial education program was one of the best things that had happened to them.

The respondents who had changed jobs or positions since graduation were asked whether or not their present jobs or positions were better than the others they had had since graduation. While 90.5% of them felt that their present jobs or positions were better than the former ones, 9.5% felt that their former jobs or positions were better than their present jobs or positions.

One would expect professionals to belong to some of the professional organizations in their fields. Analysis of the data pertaining to the membership of the respondents in professional organizations in teaching revealed that 7.3% of all the respondents had membership in the State or National Vocational Association. Membership by the respondents in the State or National Industrial Arts Association totalled 15.3%, while their membership in the State or National Educational Association totalled 29.8%. Some of the respondents (17.7%) had membership in other associations, such as the Epsilon Pi Tau

(the international honor society in industrial arts and industrial-vocational education) and the Phi Delta Kappa (an organization of professional educators). The number of respondents that belonged to each association by groups of respondents was presented in Table 4.3.

Table 4.3. Number of membership in professional organizations by classification of respondents

Professional organization	Group 1	Group 2	Group 4	Total
American or State Vocational Association	4	3	2	9
American or State Industrial Arts Association	9	4	5	18
National or State Educational Association	18	8	10	36
Other professional associations	8	6	6	20

Analysis showed further that 91.6% of the respondents to the question on membership in professional organizations indicated that the decision to change or not to change their jobs or positions was not affected by their belonging to one professional organization or the other, while 8.4% felt that their decisions were influenced by their membership in professional organizations.

The responses to the question, "Are you currently looking for another job or position seriously?" showed that 24.9% of the respondents were seriously looking for other jobs or positions. A breakdown of this proportion looking for other jobs or positions showed that 3.2% (made up of some respondents currently teaching) were looking for another teaching position, while 0.8% (currently teaching) was looking

for an administrative position in education. Fifteen and eight-tenths percent (composed of respondents currently teaching -- 70% of this proportion had remained in the same position within the 10-year period, while 30% had changed teaching positions within the 10-year period) were looking for jobs in industries. This was an indication that some of the respondents who remained in teaching were anticipating to go to work in industries.

Concerning the question, "Do you anticipate any change in job or position in the next five years?" 62.9% of the respondents anticipated a change of job or position, while 26.6% did not anticipate any change in job or position. The remaining 10.5% did not express any opinion about anticipation for change of job or position.

Findings Related to the Research Hypotheses

The following were the findings concerning the seven hypotheses formulated for this study.

Hypothesis one

It was hypothesized that the classification of the groups of respondents would be independent of marital status. Table 4.4 presented the results of the test of this hypothesis. The chi-square test was not significant at the .05 level, so the null hypothesis was accepted. The result indicated that the classification of the groups of respondents was not a function of the marital status of the respondents.

Table 4.4. Responses of subjects about marital status by group^a

Group	Response		Row subtotal
	Single	Married	
1	9(7.23)	33(34.77)	42
2	1(3.79)	21(18.21)	22
4	5(6.02)	30(28.98)	35
5	6(3.96)	17(19.04)	23
Column subtotal	21	101	Total 122

Note. $\chi^2 = 4.48256$; $df = 3$; probability = 0.2139.

^aNumbers in parentheses indicate the expected frequencies.

Hypothesis two

Hypothesis two in the null format stated: "The classification of the groups of respondents is not dependent on the feelings of the subjects about their preparation for industrial arts teaching." The result of the chi-square test of the hypothesis, presented in Table 4.5, was not significant at the .05 level. This led to the acceptance of the

Table 4.5. Responses of subjects about preparation for industrial arts teaching by group^a

Group	Response		Row subtotal
	Felt well prepared	Did not feel well prepared	
1	21(26.18)	20(14.82)	41
2	13(14.05)	9 (7.95)	22
4	27(22.35)	8(12.65)	35
5	15(13.41)	6 (7.59)	21
Column subtotal	76	43	Total 119

Note. $\chi^2 = 6.25266$; $df = 3$; probability = 0.099.

^aNumbers in parentheses indicate the expected frequencies.

null hypothesis. The classification of the respondents was not a function of the feeling about preparation in college for industrial arts teaching.

Hypothesis three

It was hypothesized that there would be no significant mean differences among the groups of subjects in terms of age. The result of the test of the hypothesis was shown in Table 4.6. By the Scheffe's procedure ranges at the .05 level, no two groups were significantly different one from the other. The null hypothesis was accepted.

Table 4.6. Analysis of variance of the age of respondents^a

Source	df	SS	MS	F
Between groups	3	141.2079	47.0693	1.053
Within groups	119	5,318.6516	44.6945	
Total	122	5,459.8594		

^aProbability of F = 0.3718.

Hypothesis four

The hypothesis in the null format stated that there were no significant mean differences among the groups of subjects in terms of the number of years of teaching. A test of the hypothesis yielded a significant result ($F = 7.479$; $df = 2,95$; $p < .01$). The results were presented in Table 4.7. The null hypothesis was rejected in favor of an alternate hypothesis that at least two group means were different. By the Scheffe's procedure ranges for the .05 level, group 4 was significantly different from groups 1 and 2. The mean of years of

Table 4.7. Analysis of variance of the number of years of teaching by respondents^a

Source	df	SS	MS	F
Between groups	2	196.5610	98.2805	7.479
Within groups	95	1,248.3456	13.1405	
Total	97	1,444.9065		

^aProbability of F = 0.001.

teaching for group 4 was three years as compared to the mean of years of teaching for group 1 (5.9 years) and group 2 (6.1 years).

Hypothesis five

Hypothesis five predicted that there would be no significant mean differences among the groups in terms of the environmental factors. The results of the analysis of variance for a test of the hypothesis were shown in Table 4.8. No significant mean differences were found among the groups ($F = 1.558$; $df = 2,65$; probability = .2183). The null hypothesis was accepted. Analysis of variance results using each of the 16 environmental factors as the independent variable showed that

Table 4.8. Analysis of variance of the responses of subjects regarding the environmental factors^a

Source	df	SS	MS	F
Between groups	2	197.7962	98.8981	1.558
Within groups	65	4,126.0210	63.4772	
Total	67	4,323.8164		

^aProbability of F = 0.2183.

at least two groups were different in terms of size of classes ($F = 3.669$; $df = 2, 88$; $p < .05$). The result was shown in Table 4.9.

Table 4.9. Analysis of variance of the responses of subjects regarding size of classes^a

Source	df	SS	MS	F
Between groups	2	7.9574	3.9787	3.669
Within groups	88	95.4270	1.0844	
Total	90	103.3843		

Note. Mean of group 1 = 3.5750; mean of group 2 = 3.3810; mean of group 4 = 2.90. Standard deviation of group 1 = 0.9578; standard deviation of group 2 = 0.9735; standard deviation of group 4 = 1.1847.

^aProbability of $F = 0.03$.

Hypothesis six

It was hypothesized that there would be no significant mean differences among the groups in terms of the professional factors. The results of the analysis of variance, presented in Table 4.10, showed a significant F -ratio ($p < .05$). By the Scheffe's procedure ranges for the .05 level, no two groups were significantly different.

Table 4.10. Analysis of variance of the responses of subjects regarding the professional factors^a

Source	df	SS	MS	F
Between groups	2	389.5974	194.7987	3.251
Within groups	75	4,493.9414	59.9192	
Total	77	4,883.5352		

Note. Mean of group 1 = 46.09; mean of group 2 = 45.18; mean of group 4 = 41.21. Standard deviation of group 1 = 7.4546; standard deviation of group 2 = 8.6330; standard deviation of group 4 = 7.5089.

^aProbability of $F = 0.044$.

The null hypothesis was accepted. However, analysis of variance results using each of the professional factors as the independent variable showed significant differences among the groups concerning students' attitude and achievement, teaching and advising load, and preparation required for classroom teaching. The results were presented in Tables 4.11 to 4.13. Concerning students' attitude and achievement (Table 4.11), group 1 was more satisfied than group 4. Concerning teaching and advising load (Table 4.12), group 1 was more satisfied than group 4, while regarding preparation required for classroom teaching (Table 4.13), group 1 was more satisfied than groups 2 and 4.

Table 4.11. Analysis of variance of the responses of subjects regarding students' attitude and achievement^a

Source	df	SS	MS	F
Between groups	2	9.9634	4.9817	4.728
Within groups	88	92.7176	1.0536	
Total	90	102.6810		

Note. Mean of group 1 = 3.13; mean of group 2 = 2.57; mean of group 4 = 2.40. Standard deviation of group 1 = 1.0424; standard deviation of group 2 = 0.9258; standard deviation of group 4 = 1.07.

^aProbability of F = 0.0112.

Hypothesis seven

The hypothesis predicted that there would be no significant mean differences among the groups of subjects in terms of the sociological factors. A test of the hypothesis by the single classification analysis of variance did not yield a significant F-ratio ($F = 2.758$; $df = 2, 84$; F probability = 0.0692). The null hypothesis was, again, accepted.

Table 4.12. Analysis of variance of the responses of subjects regarding teaching and advising load

Source	df	SS	MS	F
Between groups	2	10.6866	5.3433	6.062
Within groups	86	75.8074	0.8815	
Total	88	86.4940		

Note. Mean of group 1 = 3.69; mean of group 2 = 3.40; mean of group 4 = 2.90. Standard deviation of group 1 = 0.8631; standard deviation of group 2 = 1.1425; standard deviation of group 4 = 0.8847.

^aProbability of F = 0.003.

Table 4.13. Analysis of variance of the responses of subjects regarding preparation required for classroom teaching^a

Source	df	SS	MS	F
Between groups	2	15.35	7.6764	8.395
Within groups	88	80.47	0.9144	
Total	90	95.8240		

Note. Mean of group 1 = 3.65; mean of group 2 = 2.86; mean of group 4 = 2.80. Standard deviation of group 1 = 0.7696; standard deviation of group 2 = 1.1084; standard deviation of group 4 = 1.0635.

^aProbability of F = 0.0005.

The analysis of variance results using each of the sociological factors as the independent variable showed significant differences among the groups. The results of the test of this hypothesis were shown in Tables 4.14 to 4.16.

The results of the analysis of variance using each of the sociological factors as the independent variable showed significant differences among the groups in terms of student contact and individual freedom in the school. These results were presented in Tables 4.15 and 4.16.

Table 4.14. Analysis of variance of the responses of subjects regarding the sociological factors^a

Source	df	SS	MS	F
Between groups	2	159.9510	79.9755	2.758
Within groups	84	2,435.9546	28.9995	
Total	86	2,595.9055		

^aProbability of F = .0692.

Concerning student contact (Table 4.15), group 1 was more satisfied than group 4. In regard to individual freedom in the school (Table 4.16), again, group 1 was more satisfied than group 4.

Table 4.15. Analysis of variance of the responses of subjects regarding student contact^a

Source	df	SS	MS	F
Between groups	2	4.9188	2.4594	3.319
Within groups	88	65.2128	0.7411	
Total	90	70.1317		

Note. Mean of group 1 = 3.93; mean of group 2 = 3.81; mean of group 4 = 3.40. Standard deviation of group 1 = 0.7299; standard deviation of group 2 = 0.6016; standard deviation of group 4 = 1.1326.

^aProbability of F = 0.0408.

Table 4.16. Analysis of variance of the responses of subjects regarding individual freedom in school^a

Source	df	SS	MS	F
Between groups	2	7.0762	3.5381	3.301
Within groups	88	94.3080	1.0717	
Total	90	101.3841		

Note. Mean of group 1 = 3.98; mean of group 2 = 3.67; mean of group 4 = 3.33. Standard deviation of group 1 = 0.9997; standard deviation of group 2 = 1.0165; standard deviation of group 4 = 1.0933.

^aProbability of F = 0.0414.

Findings Related to the Instrument

For an exploration and detection of the patterning of the 39 variables in section B of the instrument (Appendix A), a five-factor analysis was run. The rotated factor matrix was shown in Table 4.17. Inspection of the five factors indicated that the instrument comprised:

Factor 1

- B1 - Opportunity for creativity
- B5 - Degree of emphasis on industrial arts in school
- B6 - Students' interest in industrial arts
- B10 - Facilities and/or material available
- B13 - Prestige of position
- B17 - School's discipline situation
- B18 - Students' attitude and achievement
- B26 - Supervision received
- B27 - Security of position
- B30 - Contract renewal
- B31 - Relationship with school's administration
- B34 - Community standards for teachers
- B35 - School's policy and long-range goals

Factor 2

- B4 - Size of community
- B16 - Health
- B36 - Relationship with colleagues
- B37 - Relationship with people in the community
- B38 - Student contact
- B39 - Individual freedom in the school

Factor 3

- B2 - Hours of work
- B7 - Size of classes
- B19 - Number of meetings to attend as industrial arts teacher
- B22 - Teaching and advising load
- B23 - Available teacher aids
- B24 - Preparation required for classroom teaching
- B33 - Required extracurricular activities

Factor 4

- B3 - Salary
- B20 - Interest in teaching
- B21 - Feeling of accomplishment
- B25 - Advancement opportunities in the district

- B28 - Challenge of job or position
- B29 - Advanced positions available

Factor 5

- B8 - Distance from home, community, or parent
- B11 - Geography of the state
- B12 - Prestige of school

Table 4.17. Varimax rotated factor matrix for the 39 variables in section B of the questionnaire

B1	0.53214	0.19803	0.17811	0.06058	0.06695
B2	-0.13043	0.25371	0.63391	-0.15525	0.08164
B3	0.10065	-0.03826	0.23101	0.51869	-0.03041
B4	0.15087	0.40695	-0.06382	0.03080	0.34544
B5	0.59261	0.11261	-0.06211	-0.12722	0.26349
B6	0.71599	0.11406	-0.00426	0.00120	0.09833
B7	0.10243	0.35271	0.38774	-0.04189	0.19361
B8	-0.04353	-0.04896	0.16904	0.02553	0.38820
B9	0.06164	0.08043	0.30838	0.32935	0.32809
B10	0.54541	0.12661	0.48555	0.30318	0.06416
B11	0.03096	0.25821	0.01984	0.12457	0.60362
B12	0.14697	0.16306	-0.01863	0.09079	0.78064
B13	0.42858	0.42325	0.11183	0.21549	0.36847
B14	0.06222	0.18989	0.19293	-0.20577	0.22852
B15	-0.14792	0.19201	0.22072	-0.09428	0.14699
B16	0.05227	0.54137	0.03392	0.21783	0.05189
B17	0.53381	0.22967	0.22280	0.14888	0.11255
B18	0.45267	0.38481	0.03983	0.21675	0.17587
B19	0.19807	0.02155	0.47292	0.21918	0.12389
B20	0.32532	0.39889	0.10869	0.63644	-0.07996
B21	0.32158	0.38294	0.04257	0.66165	-0.08361
B22	0.14581	0.02683	0.1508	0.12232	0.03636
B23	0.23576	-0.09837	0.49202	0.08803	0.17555
B24	0.18527	0.22685	0.48781	0.11498	0.15907
B25	-0.00710	0.00970	-0.01610	0.62369	0.18396
B26	0.59833	0.22746	0.04689	0.12708	0.08697
B27	0.48056	-0.13344	0.02307	0.24264	-0.05282
B28	0.17116	0.45951	-0.04812	0.48399	0.03773
B29	0.06561	0.04508	-0.06675	0.49779	0.11006
B30	0.64637	-0.19420	0.14708	0.17291	-0.21955
B31	0.80365	0.12402	0.07197	0.05337	-0.00333
B32	0.81065	0.10613	0.02571	0.25420	-0.03966
B33	-0.01626	0.08971	0.60514	-0.09666	-0.21040
B34	0.40101	0.16403	0.29200	-0.11196	0.07584
B35	0.40195	-0.04790	0.20641	0.01220	0.38058
B36	0.07447	0.53029	0.21726	-0.00944	0.06297
B37	0.12917	0.69190	0.03576	0.05417	0.11840
B38	0.07389	0.73452	0.20152	0.07756	0.04847
B39	0.43806	0.54892	0.41945	-0.05489	-0.19076

Note. The 39 variables were coded as follows: B1 to B16 (Environmental factors); B17 to B30 (Professional factors); B31 to B39 (Sociological factors).

CHAPTER V. SUMMARY, CONCLUSIONS, AND RECOMMENDATIONS

Introduction

The problem of this study was to determine the factors related to the mobility of selected Iowa secondary schools' industrial arts teachers; the purposes were to:

- (1) Generate information that could be helpful to the vocational program administration in hiring personnel and in meeting in-service education needs.
- (2) Provide information that could be helpful to industrial arts teacher training departments/institutions as to the possible ways of updating curriculum so as to be further responsive to the potential teachers' needs.
- (3) Generate information concerning the job-satisfying and dissatisfying factors which could be useful to administrators in coping with the personal needs of teachers.

The teachers who graduated from the Department of Industrial Education (teaching option), Iowa State University, between 1970 and 1979 were selected as the subjects for the study. The subjects, by their responses to the questionnaire for the study, were identified into the following groups:

- Group 1 - Certificated teachers of industrial arts in the same position within the 10-year period.
- Group 2 - Certificated teachers of industrial arts who changed positions within the 10-year period.

- Group 3 - Certificated teachers of industrial arts who, rather than teach industrial arts, taught subjects other than industrial arts within the 10-year period.
- Group 4 - Certificated teachers of industrial arts who left industrial arts teaching for employment in other fields within the 10-year period.
- Group 5 - Certificated teachers of industrial arts who never taught industrial arts within the 10-year period.

Conclusions

The following conclusions were drawn in regard to each of the seven hypotheses formulated for the study:

Hypothesis one

Hypothesis one predicted that the classification of the groups of subjects would be independent of the subjects' marital status. Based upon the findings related to this hypothesis (Table 4.4), the following conclusion was drawn: that the classification of the groups of subjects in this study was not a function of the marital status of the respondents.

Hypothesis two

Hypothesis two predicted that the classification of the groups of subjects would be independent of the feelings of the subjects about their preparation in college for the teaching of industrial arts. Based on the findings related to this hypothesis (Table 4.5), the following conclusion was drawn: that the classification of the groups

of subjects in this study was not a function of the respondents' feelings about their college preparation for teaching industrial arts.

Hypothesis three

The prediction of hypothesis three was to the effect that there would be no significant mean differences among the groups of subjects in terms of age. Based upon the findings for the hypothesis (Table 4.6), it was concluded that no two groups of subjects in this study were significantly different from each other in terms of age.

Hypothesis four

Hypothesis four predicted that there would be no significant mean differences among the groups of subjects in terms of years of teaching. Based on the findings related to this hypothesis (Table 4.7), the following conclusion was drawn: that there were differences among the groups of subjects regarding the number of years of teaching. Respondents who had remained in the same position within the 10-year period (group 1) and those who had changed teaching positions within the 10-year period (group 2) had been in teaching longer than the respondents who left the teaching of industrial arts for employment in other fields (group 4).

Hypothesis five

Hypothesis five predicted that there would be no significant mean differences among the groups of subjects in terms of the environmental factors. Based on the findings related to this hypothesis (Tables 4.8 and 4.9), the following conclusions were drawn:

- (1) That the groups of subjects did not differ among one another regarding the environmental factors considered together.
 - (2) That when the variables constituting the environmental factors were considered, one at a time, the groups of subjects differed among one another concerning size of classes.
- Group 1 was more satisfied than group 4 (mean of group 1 = 3.58; mean of group 2 = 3.38; mean of group 4 = 2.90).

Hypothesis six

Hypothesis six predicted that there would be no significant mean differences among the groups of subjects in terms of the professional factors. Based on the findings related to this hypothesis (Table 4.10), the following conclusions were drawn:

- (1) That the groups of respondents in this study did not differ significantly, one from the other, concerning the professional factors.
- (2) That when the variables constituting the professional factors were considered, one at a time, the groups of respondents differed, one from the other, in terms of students' attitude and achievement, teaching and advising load, and preparation required for classroom teaching.

Hypothesis seven

The prediction of hypothesis seven was to the effect that there would be no significant mean differences among the groups of subjects in terms of the sociological factors. Based upon the findings related

to this hypothesis (Tables 4.14 to 4.16), the following conclusions were drawn:

- (1) That when the sociological factors were considered together, no two groups of subjects were different from each other.
- (2) That when the variables constituting the sociological factors were considered, one at a time, the groups differed, one from the other, in terms of student contact and individual freedom in the school.

Summary

In summary, these were the major conclusions of this study:

- (1) That contrary to what the review of literature indicated, the classification of the groups of subjects in this study was independent of whether the subjects were married or single.
- (2) That the classification of the groups of subjects in this study was not a function of the subjects' feelings concerning the preparation they had in college for the teaching of industrial arts.
- (3) That there were no significant differences among the groups of subjects in terms of the environmental, professional, and sociological factors.
- (4) That when the 39 variables constituting the environmental, professional, and sociological factors were considered, one at a time, differences were found among the groups concerning:
 - (a) Size of classes.

- (b) Students' attitude and achievement.
 - (c) Teaching and advising load.
 - (d) Preparation required for classroom teaching.
 - (e) Student contact.
 - (f) Individual freedom in school.
- (5) That when the 39 variables constituting the environmental, professional, and sociological factors were factor analyzed, a new patterning of the variables emerged in accordance with the responses of the subjects (pp. 51-52).
- (6) That the pattern of mobility of the selected Iowa secondary schools' industrial arts teachers was not a very clear phenomenon. All that was discernible was that almost 60% of the respondents had either changed position, or changed from teaching to non-teaching jobs, or did not teach within the 10-year period. It was also clear from the analysis of responses that 63% of the respondents were anticipating change in job or position within the next five years. Of this proportion, 43% had remained in the same position within the 10-year period, while 18% had changed teaching position within the same period.

Recommendations

In view of the foregoing findings of this study, it is recommended that:

- (1) Further research be initiated to find out why many graduates prefer not to teach after graduation or leave teaching for

non-teaching jobs after a period of time.

- (2) Further research be carried out concerning how industry attracts and sustains industrial arts teachers.
- (3) This study be replicated in the next 10 years to find if more insight could be gained into the patterns of mobility of the graduates of the Department of Industrial Education, Iowa State University, or any other sample within the population of the secondary schools' industrial arts teachers in Iowa.
- (4) Consideration be given, in replicating this study, to the reorganization and inclusion of the 39 variables constituting the environmental, professional, and sociological factors. The five factors (pp. 51-52) could be used instead of the arbitrary grouping of variables used in the instrument for this study.
- (5) Attention be drawn, by program administrators as well as teacher training departments and institutions, to the factors with which teachers who had moved out of teaching were not satisfied. The factors were:
 - (a) Size of classes.
 - (b) Student attitude and achievement.
 - (c) Teaching and advising load.
 - (d) Student contact.
 - (e) Preparation required for classroom teaching.
 - (f) Individual freedom in school.

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APPENDIX A. THE QUESTIONNAIRE

INSTRUCTIONS

Please read the entire instrument and then check (✓), circle (O), or write in the most appropriate response and return in the self-addressed envelope provided.

SECTION A

This section seeks information about the demographic factors related to your job, both past and present.

1. What is your age? _____ years
2. What is your marital status? _____
 1. Single (widowed, separated, divorced, never married)
 2. Married (living with spouse)
3. For how long have you been teaching? _____ years
4. What was your primary assignment when you started teaching?
5. What is your primary assignment presently?
6. Why did you choose to pursue industrial arts teaching as a career in college? (Check all that apply.)
 - _____ Advice or influence of parents
 - _____ Advice or influence of friends
 - _____ Advice of high school guidance counselor
 - _____ Advice of industrial arts teacher
 - _____ Others (specify)
 - _____
7. Did you feel adequately prepared for industrial arts teaching when you graduated?
 - _____ Yes
 - _____ No

8. In which areas did you feel least prepared?

- ☐ Teaching methods
- ☐ Human/or public relations
- ☐ Knowledge of subject matter
- ☐ Others (specify)

Skip Question 9 if your present job is your first job following graduation.

9. Do you like your present job/or position better than any other(s) you have had since graduation?

- ☐ Present job/or position is better than former one(s).
- ☐ Present job/or position is not better than former one(s).

10. To which of the following organizations do you belong?

- ☐ American/or State Vocational Association
- ☐ American/or State Industrial Arts Association
- ☐ National/or State Educational Association
- ☐ Others (specify)

11. Do you feel that your involvement in any of the professional organizations affected your decision to change or not to change job/or position?

- ☐ Yes
- ☐ No

12. Are you currently looking for another job/or position seriously?

- ☐ Yes
- ☐ No

Skip Question 13 if your response to Question 12 is "No."

13. What type of job/or position are you seriously seeking now?

- ☐ Education (Teaching)
- ☐ Education (Administration)
- ☐ Job in industry
- ☐ Others (specify)

14. Do you anticipate any change in job or position in the next five years?

- ☐ Yes
- ☐ No

SECTION B

This section seeks information about your present or past position. If you have changed your job or position since graduation, rate the following factors relative to your former job or position. If you have not changed your job or position since graduation, rate the factors relative to your present job.

	Strongly dissatisfied	Dissatisfied	Neither satisfied nor dissatisfied	Satisfied	Strongly satisfied
	1	2	3	4	5
A. <u>Environmental factors</u>					
Opportunity for creativity -----					
Hours of work -----					
Salary -----					
Size of community -----					
Degree of emphasis on Industrial Arts in school -					
Students' interest in Industrial Arts -----					
Size of classes -----					
Distance from home, community or parent -----					
Distance from spouse's home, community or parent (if married) -----					
Facilities and/or materials and equipment avail- able -----					
Geography of the state -----					
Prestige of school -----					
Prestige of position -----					
Spouse's and your own job locations (if married)-					
Distance from some close friends -----					
Your health -----					

	Strongly dissatisfied	Dissatisfied	Neither satisfied nor dissatisfied	Satisfied	Strongly satisfied
	1	2	3	4	5
B. <u>Professional factors</u>					
School's discipline situation -----					
Students' attitude and achievement -----					
Number of meetings to attend as Industrial Arts teacher -----					
Interest in teaching -----					
Feeling of accomplishment -----					
Teaching and advising load -----					
Available teacher aids -----					
Preparation required for classroom teaching -----					
Advancement opportunities in the district -----					
Supervision received -----					
Security of position -----					
Challenge of job or position -----					
Advanced positions available -----					
Contract renewal -----					
C. <u>Sociological factors</u>					
Relationship with school's administration -----					
Administrative support and backing on decisions -					
Required extracurricular activities -----					
Community standards for teachers -----					
School's policy and long-range goals -----					
Relationship with colleagues -----					
Relationship with people in community -----					
Student contact -----					
Individual freedom in the school -----					

APPENDIX B. CORRESPONDENCE

Dear Educator,

I am a graduate student in Industrial Education conducting a study on the patterns of job mobility of the products of the Department of Industrial Education. Apart from forming a part of the requirements for my graduation the study will serve the following purposes:

- (1) Providing information for understanding the mobility of industrial educators.
- (2) Generating information relative to job mobility which could be helpful to the local program administrator in hiring personnel and in meeting in-service education needs.
- (3) Providing information to industrial arts teacher training departments/or institutions as to the possible ways of updating curriculum to be further responsive to the potential teachers' needs.

I should be grateful if you could complete and return the attached questionnaire within two (2) weeks. I wish to assure you that all responses will be kept confidential and, as such, your name is not required on the questionnaire. The self-addressed stamped envelope is provided for your convenience.

I sincerely appreciate your devoting a few minutes out of your busy schedule to make this study a success.

Sincerely,

Peter Awotunde

Enclosures

Approved: _____

~~Dr. William D. Wolansky~~
Professor and Head
Department of Industrial Education

Iowa State University of Science and Technology Ames, Iowa 50011



College of Education
Industrial Education
Telephone 515-294-1033

February 11, 1980

Dear Industrial Education Graduate:

A questionnaire to survey the patterns of job mobility of the graduates of the Department of Industrial Education was sent to you in January, 1980. At the time of this writing, the completed instrument has not been returned to me. I am enclosing another copy for your response in case the questionnaire was not received by you.

This study cannot be successfully concluded without your support and cooperation. I will be grateful if you would complete and return the questionnaire as early as possible. Your response to each of the questions in Section A and B is essential to the findings of the study.

Thank you for your cooperation and assistance by participating in this study.

Sincerely,

Peter Awotunde

Enclosure

William D. Wolansky
Professor and Head
Department of Industrial Education